



ELECTRONIC PRIVACY INFORMATION CENTER

RFID Workshop Comment P049106

FTC Workshop on

**Radio Frequency Identification:
Applications and Implications for Consumers**

June 21, 2004

Comments of the

ELECTRONIC PRIVACY INFORMATION CENTER

to the

FEDERAL TRADE COMMISSION

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TABLE OF CONTENTS

INTRODUCTION

1. RFID AND ITS PRIVACY IMPLICATIONS

2. RFID AND FAIR INFORMATION PRACTICES

3. EPIC RECOMMENDATIONS

4. EPIC GUIDELINES

APPENDIX 1 - RFID INDUSTRY AND MANUFACTURER SURVEY

APPENDIX 2: Greg Plichta, "Balancing RFID Technology and Expectations of Privacy:
An Examination and Proposed Guidelines" (May 2004).

Introduction

The Electronic Privacy Information Center (EPIC) is a public interest research center in Washington, D.C. It was established in 1994 to focus public attention on emerging civil liberties issues and to protect privacy. EPIC supports the Federal Trade Commission's (FTC) efforts to explore uses (both current and anticipated), efficiencies, and implications for consumers associated with radio frequency identification (RFID) technology.

RFID technology represents a fundamental change in the information technology infrastructure with dramatic privacy implications. RFID technology significantly expands the range and function of global, electronic databases of all kinds. Because both the tag and the reading process can be virtually silent and invisible, RFID, if left unregulated, would permit a wide range of private and public covert, database-linked surveillance, tracking and profiling applications whose operation will not be transparent and remain unknown to the person under observation.

RFID tags are increasingly being used as a more advanced form and possible replacement of bar codes. The ever decreasing price for RFID tags and readers makes their widespread deployment increasingly economically viable. RFID tags are likely to become essential drivers of ubiquitous (or pervasive) computing. Their storage and capacity for interactive communication make them much more powerful than bar codes. They also provide for unique identification of each tagged unit, whereas bar codes are identical for every unit of the same product.

Unresolved questions still cloud this issue. It is yet unclear who should be allowed to collect data from RFID technology and to what extent. The standards and guidelines for sharing the data, either with other businesses or with the government, are still unclear. Consumers' right to either challenge the collection of data on their habit or to correct erroneous data is undefined. Additionally, consumers do not know the nature of the information that will be kept on them, or for how long it will be stored. The security of this data, that when correlated with other databases offer a granular picture of the individual, is of high concern and as of yet suspect.

These comments are divided into four primary sections: 1. RFID and Its Privacy Implications, 2. RFID and Fair Information Practice, 3. EPIC's Recommendations, and 4. EPIC's Guidelines on Commercial Use of RFID. In addition, two appendices are provided: Appendix 1, A RFID Industry and Manufacturer Survey; and Appendix 2, a paper prepared for EPIC by Washington University law student Greg Plichta: "Balancing RFID Technology and Expectations of Privacy: An Examination and Proposed Guidelines" (May 2004).

These comments demonstrate a compelling need for the Federal Trade Commission to issue industry guidelines for RFID use in consumer products, as well as recommend a comprehensive technology assessment before RFID technologies are widely deployed in the retail industry. Other US agencies, including the Food and Drug Administration (FDA), Department of Defense

US Federal Trade Commission - Workshop on Radio Frequency Identification:
Applications and Implications for Consumers (June 21, 2004)

(DOD), and the Department of Homeland Security (DHS) are promoting the adoption of product-level RFID tagging without considering consumer privacy implications.¹

¹ See "Combating Counterfeit Drugs: A Report of the Food and Drug Administration," Food and Drug Administration report, February 2004, available at <http://www.fda.gov/oc/initiatives/counterfeit/report02_04.html>; "DoD Announces Radio Frequency Identification Policy," United States Department of Defense Press Release, October 23, 2004, available at <<http://www.dod.mil/releases/2003/m20031023-0568.html>>; and Jonathan Krim, "Embedding Their Hopes in RFID," E-Commerce Times, June 25, 2004, available at <<http://www.ecommercetimes.com/story/34773.html>>.

1. RFID and Its Privacy Implications

1.1 RFID Defined

- 1.2. RFID and the Impending Explosion of Consumer Generated Electronic Data
- 1.3. Active, Passive and "Class 0"
- 1.4. How "Class 0" Tags can be Tracked Via Object Name Service (ONS)
- 1.5. Verisign and ONS
- 1.6. Current RFID Tracking Applications
- 1.7. Industry Solutions for Consumer Product RFID Tagging

1.1. RFID Defined

"The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it."²

Radio Frequency Identification (RFID) is an emerging information technology designed to facilitate the remote capture of information from physical objects. Associated data is stored on a small token (a "tag") affixed to, or embedded in, the object. Tags in use today are small enough to be invisibly embedded in products and product packaging. Data is read from these tags via radio waves transmitted by special RFID reading devices. RFID readers are often connected to computer networks, facilitating the transfer of data from the physical object to databases and software applications thousands of miles away and allowing objects to be continually located and tracked through space. Today, major uses of RFID include supply chain management, animal tracking, and electronic roadway toll collection.³

RFID technology represents a fundamental change in the information technology infrastructure with dramatic privacy implications. RFID technology represents the leading edge of a broader movement in computer science known as "pervasive" or "ubiquitous" computing where computers disappear into the environment and space itself becomes intelligent. Computer scientists behind the design of RFID envision a time in the not too distant future when all manmade objects on the planet bear RFID tags and information available on those tags is accessible to the global computer network -- a seamless link between the physical and virtual world.⁴

1.2. RFID and the Impending Explosion of Consumer Generated Electronic Data

² M. Weiser, "The Computer for the Twenty-First Century," *Scientific American*, pp. 94-10, September 1991.

³ See EPIC RFID web page <<http://www.epic.org/privacy/rfid/>> for continually updated information on RFID developments and section on RFID in *Privacy and Human Rights 2003 – An International Survey of Privacy laws and Developments* (Cédric Laurant, ed., EPIC and Privacy International 2003), available at <<http://www.privacyinternational.org/survey/phr2003/threats.htm#Radio-Frequency%20Identification>>.

⁴ See R. Want, K. Fishkin, A. Gujar, and B. Harrison, "Bridging Physical and Virtual Worlds with Electronic Tags," *Proceedings of CHI'99*, ACM Press, April, 1999, available at <<http://pads1.cs.nthu.edu.tw/course/ISA5428/Tags.pdf>>.

At the June 21, 2004 Federal Trade Commission workshop on RFID, several panelists pointed toward the importance of database management as a privacy issue. Jim Waldo, of Sun Microsystems, argued that database management is far more significant from a privacy standpoint than the issue of RFID technology itself.⁵ We agree that database management is the central issue and that much of the privacy problem -- the use, processing and sharing of personal data via electronic databases -- has been around for quite some time. However, we disagree with Mr. Waldo's assertion that RFID is not life-changing and will not change the way we compute.⁶

RFID technology significantly expands the range and function of global, electronic databases of all kinds. Because both the tag and the reading process can be virtually silent and invisible, RFID, if left unregulated, would permit a wide range of public and private covert, database-linked surveillance, tracking and profiling applications whose operation will be invisible and remain unknown to the person under observation. The significance of RFID lies in the expansion of the global electronic network from a web of computers to a global web of physical objects and computers. Data generation does not require the intervention of a human agent at a keyboard or other form of terminal, only the presence of these objects in real space and the sweep of a radio wave. As a result, the class of events which could trigger the generation of data and its storage in a database expands by several orders of magnitude.

Although the use of RFID in the retail sector is now primarily in the supply chain, products with embedded RFID are beginning to appear on store shelves. Product-level tagging, if left unregulated, could facilitate unprecedented levels of consumer surveillance, tracking, and profiling.

1.3. Active, Passive, and "Class 0" Tags

When considering the technological plausibility of various privacy-threatening scenarios it is important to make a careful distinction between the types of RFID tags being considered. A common distinction between "active" and "passive" tags sometimes results in confusion. Passive tags, by definition, lack an independent power source. A sizeable class of passive RFID chips, however, allow for tag data to be supplemented and modified via the tag reader, allowing associated item information to be updated directly on the tag while it is in use. Passive tags, which do not permit data modification, are classified as "class 0" tags by the international RFID standards body EPCglobal.⁷ Active tags may have on board batteries that dramatically increase their read range and functionality.

1.4. How "Class 0" Tags Can Be Tracked Via Object Name Service (ONS)

⁵ See Jim Waldo, "Future Uses of RFID," June 21, 2004 presentation at FTC RFID workshop for partial reference, available at <<http://www.ftc.gov/bcp/workshops/rfid/waldo.pdf>>. The comment on the importance of databases does not appear in the Power Point outline available at the FTC workshop web site but it was made several times during the live presentation.

⁶ Jim Waldo, *supra*.

⁷ See EPCglobal web site at <<http://www.epcglobalinc.org/>>.

